

10/575991

AP20 Rec'd PCT/PTO 13 APR 2006

54-000711US.ST25.txt
SEQUENCE LISTING

<110> The Scripps Research Institute
Alfonta, Lital
Schultz, Peter G
Zhang, Zhiwen

<120> SITE-SPECIFIC INCORPORATION OF REDOX ACTIVE AMINO ACIDS INTO
PROTEINS

<130> 54-000711US

<140> Not Yet Known

<141> 2006-04-14

<160> 5

<170> PatentIn version 3.2

<210> 1

<211> 306

<212> PRT

<213> Artificial

<220>

<223> synthetase selected for incorporation of DHP

<400> 1

Met Asp Glu Phe Glu Met Ile Lys Arg Asn Thr Ser Glu Ile Ile Ser
1 5 10 15

Glu Glu Glu Leu Arg Glu Val Leu Lys Lys Asp Glu Lys Ser Ala Leu
20 25 30

Ile Gly Phe Glu Pro Ser Gly Lys Ile His Leu Gly His Tyr Leu Gln
35 40 45

Ile Lys Lys Met Ile Asp Leu Gln Asn Ala Gly Phe Asp Ile Ile Ile
50 55 60

Leu Leu Ser Asp Leu Asn Ala Tyr Leu Asn Gln Lys Gly Glu Leu Asp
65 70 75 80

Glu Ile Arg Lys Ile Gly Asp Tyr Asn Lys Lys Val Phe Glu Ala Met
85 90 95

Gly Leu Lys Ala Lys Tyr Val Tyr Gly Ser Glu Phe Gln Leu Asp Lys
100 105 110

Asp Tyr Thr Leu Asn Val Tyr Arg Leu Ala Leu Lys Thr Thr Leu Lys
115 120 125

Arg Ala Arg Arg Ser Met Glu Leu Ile Ala Arg Glu Asp Glu Asn Pro
130 135 140

Lys Val Ala Glu Val Ile Tyr Pro Ile Met Gln Val Asn Asp Ile His
145 150 155 160

Tyr Leu Gly Val Asp Val Gln Val Gly Gly Met Glu Gln Arg Lys Ile
 165 170 175

His Met Leu Ala Arg Glu Leu Leu Pro Lys Lys Val Val Cys Ile His
 180 185 190

Asn Pro Val Leu Thr Gly Leu Asp Gly Glu Gly Lys Met Ser Ser Ser
 195 200 205

Lys Gly Asn Phe Ile Ala Val Asp Asp Ser Pro Glu Glu Ile Arg Ala
 210 215 220

Lys Ile Lys Lys Ala Tyr Cys Pro Ala Gly Val Val Glu Gly Asn Pro
 225 230 235 240

Ile Met Glu Ile Ala Lys Tyr Phe Leu Glu Tyr Pro Leu Thr Ile Lys
 245 250 255

Arg Pro Glu Lys Phe Gly Gly Asp Leu Thr Val Asn Ser Tyr Glu Glu
 260 265 270

Leu Glu Ser Leu Phe Lys Asn Lys Glu Leu His Pro Met Asp Leu Lys
 275 280 285

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile Leu Glu Pro Ile Arg Lys
 290 295 300

Arg Leu
 305

<210> 2
 <211> 77
 <212> RNA
 <213> Artificial

<220>
 <223> mutant tRNA

<400> 2
 ccggcgguag uucagcaggg cagaacggcg gacucuaaaau ccgcauggcg cugguucaaa 60
 uccggccccgc cggacca 77

<210> 3
 <211> 918
 <212> DNA
 <213> Artificial

<220>
 <223> synthetase selected for incorporation of DHP

<400> 3
 atggacgaat ttgaaatgat aaagagaaac acatctgaaa ttatcagcga ggaagagtta 60

54-000711US.ST25.txt

agagaggttt taaaaaaga tgaaaaatct gctctcatag gttttgaacc aagtggtaaa 120
 atacatttag ggcattatct ccaaataaaa aagatgattg atttacaaaa tgctggattt 180
 gatataatta tattgttgag cgatttaaac gcctatttaa accagaaagg agagttggat 240
 gagattagaa aaataggaga ttataacaaa aaagtttttg aagcaatggg gttaaaggca 300
 aaatatgttt atggaagtga attccagctt gataaggatt atacactgaa tgtctataga 360
 ttggctttta aaactacctt aaaaagagca agaaggagta tggaacttat agcaagagag 420
 gatgaaaatc caaagggtgc tgaagttatc tatccaataa tgcagggtta tgatattcat 480
 tatttaggcg ttgatgttca ggttgaggag atggagcaga gaaaaataca catgttagca 540
 agggagcttt taccaaaaaa ggttgtttgt attcacaacc ctgtcttaac gggtttggat 600
 ggagaaggaa agatgagttc ttcaaaaggg aattttatag ctgttgatga ctctccagaa 660
 gagattaggg ctaagataaa gaaagcatac tgcccagctg gagttgttga aggaaatcca 720
 ataatggaga tagctaaata cttccttgaa tctcctttaa ccataaaaag gccagaaaaa 780
 tttggtggag atttgacagt taatagctat gaggagttag agagtttatt taaaaataag 840
 gaattgcac caatggattt aaaaaatgct gtagctgaag aacttataaa gattttagag 900
 ccaattagaa agagatta 918

<210> 4
 <211> 306
 <212> PRT
 <213> Methanococcus jannaschii

<400> 4

Met Asp Glu Phe Glu Met Ile Lys Arg Asn Thr Ser Glu Ile Ile Ser
 1 5 10 15

Glu Glu Glu Leu Arg Glu Val Leu Lys Lys Asp Glu Lys Ser Ala Tyr
 20 25 30

Ile Gly Phe Glu Pro Ser Gly Lys Ile His Leu Gly His Tyr Leu Gln
 35 40 45

Ile Lys Lys Met Ile Asp Leu Gln Asn Ala Gly Phe Asp Ile Ile Ile
 50 55 60

Leu Leu Ala Asp Leu His Ala Tyr Leu Asn Gln Lys Gly Glu Leu Asp
 65 70 75 80

Glu Ile Arg Lys Ile Gly Asp Tyr Asn Lys Lys Val Phe Glu Ala Met
 85 90 95

Gly Leu Lys Ala Lys Tyr Val Tyr Gly Ser Glu Phe Gln Leu Asp Lys
 100 105 110

Asp Tyr Thr Leu Asn Val Tyr Arg Leu Ala Leu Lys Thr Thr Leu Lys
 Page 3

115

120

125

Arg Ala Arg Arg Ser Met Glu Leu Ile Ala Arg Glu Asp Glu Asn Pro
130 135 140

Lys Val Ala Glu Val Ile Tyr Pro Ile Met Gln Val Asn Asp Ile His
145 150 155 160

Tyr Leu Gly Val Asp Val Ala Val Gly Gly Met Glu Gln Arg Lys Ile
165 170 175

His Met Leu Ala Arg Glu Leu Leu Pro Lys Lys Val Val Cys Ile His
180 185 190

Asn Pro Val Leu Thr Gly Leu Asp Gly Glu Gly Lys Met Ser Ser Ser
195 200 205

Lys Gly Asn Phe Ile Ala Val Asp Asp Ser Pro Glu Glu Ile Arg Ala
210 215 220

Lys Ile Lys Lys Ala Tyr Cys Pro Ala Gly Val Val Glu Gly Asn Pro
225 230 235 240

Ile Met Glu Ile Ala Lys Tyr Phe Leu Glu Tyr Pro Leu Thr Ile Lys
245 250 255

Arg Pro Glu Lys Phe Gly Gly Asp Leu Thr Val Asn Ser Tyr Glu Glu
260 265 270

Leu Glu Ser Leu Phe Lys Asn Lys Glu Leu His Pro Met Asp Leu Lys
275 280 285

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile Leu Glu Pro Ile Arg Lys
290 295 300

Arg Leu
305

<210> 5
<211> 918
<212> DNA
<213> Methanococcus jannaschii

<400> 5
atggacgaat ttgaaatgat aaagagaaac acatctgaaa ttatcagcga ggaagagtta 60
agagaggttt taaaaaaaga tgaaaaatct gcttacatag gttttgaacc aagtggtaaa 120
atacatttag ggcattatct ccaaataaaa aagatgattg atttacaaaa tgctggattt 180
gatataatta tattgttggc tgatttacac gcctatttaa accagaaagg agagttggat 240
gagattagaa aaataggaga ttataacaaa aaagtttttg aagcaatggg gttaaaggca 300

54-000711US.ST25.txt

aaatatgttt atggaagtga attccagctt gataaggatt atacactgaa tgtctataga	360
ttggcttttaa aaactacctt aaaaagagca agaaggagta tggaacttat agcaagagag	420
gatgaaaatc caaaggttgc tgaagttatc tatccaataa tgcagggttaa tgatattcat	480
tatttaggcg ttgatgttgc agttggaggg atggagcaga gaaaaataca catgttagca	540
agggagcttt taccaaaaaa ggttgtttgt attcacaacc ctgtcttaac gggtttggat	600
ggagaaggaa agatgagttc ttcaaaaggg aattttatag ctgttgatga ctctccagaa	660
gagattaggg ctaagataaa gaaagcatac tgcccagctg gagttgttga aggaaatcca	720
ataatggaga tagctaaata cttccttgaa tatcctttta ccataaaaag gccagaaaaa	780
tttggtggag atttgacagt taatagctat gaggagttag agagtttatt taaaaataag	840
gaattgcac caatggattt aaaaaatgct gtagctgaag aacttataaa gatttttagag	900
ccaattagaa agagatta	918